

## Assignment 9-5 Integer Subtraction 5

You are given two positive integers  $a$  and  $b$ . The problem is to subtract  $b$  from  $a$ . ( $b \leq a < 10^{250}$ )

### Input

The input consists of  $t$  ( $30 \leq t \leq 40$ ) test cases. The first line of the input contains only positive integer  $t$ . Then  $t$  test cases follow. Each test case consists of two lines which give the two positive integers  $a$  and  $b$  ( $b \leq a < 10^{250}$ ), respectively.

### Output

For each test case, you are to output a single line containing the difference  $a - b$ .

### Sample Input

```
2
12345
12311
12345
12345
```

### Sample Output

```
34
0
```

### Part of the program

You are required to write the function subtraction to complete the following program which solves this problem. In your program, you cannot declare global variables or static arrays.

```
#include <iostream>
#include <cstring>
#include <vector>
using namespace::std;

// returns true if and only if hugeInt1 == hugeInt2
bool equal( vector< int > hugeInt1, vector< int > hugeInt2 );

// difference = minuend - subtrahend provided that minuend >= subtrahend
vector< int > subtraction( vector< int > minuend, vector< int > subtrahend );

int main()
{
    char strA[ 251 ], strB[ 251 ];
    int T;
```

```

cin >> T;
for( int t = 0; t < T; ++t )
{
    cin >> strA >> strB;

    int minuendSize = strlen( strA );
    vector< int > minuend( minuendSize );
    for( int i = 0; i < minuendSize; ++i )
        minuend[ i ] = strA[ minuendSize - 1 - i ] - '0';

    int subtrahendSize = strlen( strB );
    vector< int > subtrahend( subtrahendSize );
    for( int i = 0; i < subtrahendSize; ++i )
        subtrahend[ i ] = strB[ subtrahendSize - 1 - i ] - '0';

    vector< int > difference = subtraction( minuend, subtrahend );

    for( int i = difference.size() - 1; i >= 0; i-- )
        cout << difference[ i ];
    cout << endl;
}
}

// returns true if and only if hugeInt1 == hugeInt2
bool equal( vector< int > hugeInt1, vector< int > hugeInt2 )
{
    int size1 = hugeInt1.size();
    int size2 = hugeInt2.size();
    if( size1 != size2 )
        return false;

    for( int i = 0; i < size1; i++ )
        if( hugeInt1[ i ] != hugeInt2[ i ] )
            return false;

    return true;
}

// difference = minuend - subtrahend provided that minuend >= subtrahend
vector< int > subtraction( vector< int > minuend, vector< int > subtrahend )
{
}

}

```